**CS 201 – Introduction to Computing – Summer 2021**

3 credits

**Description and objectives**

The objective of this course is to introduce students to the field of computing and problem solving with the help of an object-oriented programming language (C++). Hence the course will cover many C++ features in detail as needed so students will also be learning a structured programming language.

Through the lectures, interactive recitations, assignments, exams, student activities, students will learn how to design algorithms based on object-oriented programming paradigms. Evaluation of the solutions in terms of correctness and efficiency will also be covered.

**Tentative Course Outline**

* + Introduction to Programming Languages,
	+ Data Representation (bits and bytes),
	+ Basic programming structure and concepts: identifiers, literals, symbols, variables, screen input/output (cin and cout)
	+ Basic data types (int/double/char/bool) and basic arithmetic operations with their precedence,
	+ First C++ program with Visual MS Studio
	+ Functions with/out return values, function prototypes
	+ Parameter passing (pass by value and by reference),
	+ Conditional statements (if-else), nested else-if statements,
	+ Logical operators (&&, ||, !)
	+ String class,
	+ Loops (while, for, do-while)
	+ Char data type and arithmetic operations
	+ File I/O, console stream cin, input and output file streams,
	+ String streams
	+ Structs, enum,
	+ Vectors/arrays and vector operations:
		- Insert/delete to a vector
		- Searching (Sequential, binary)
		- Sorting (selection and insertion sort)
	+ Vector of structs, matrix
	+ Introduction to algorithm complexity analysis
* Classes and objects: using and modifying existing classes such as Dice, RandGen, Date.

**Textbook**

“**A Computer Science Tapestry**”, 2nd Edition, Owen L. Astrachan

NOT available in the bookstore anymore but available at the library and online.

We may not stick to the textbook all the time, you are responsible for all material covered in class.

**Instructor and lectures’ info:**

**Artrim Kjamilji**, **email:** artrimk@sabanciuniv.edu

**Lecture schedules:**

Tuesday: 8.40-10.30

Thursday: 15.40-17.30

Friday: 11.40-14.30 (All Istanbul time)

**Office Hours (OH):** You are firstly encouraged to attend lectures, recitations and TAs’ office hours. If this still didn’t help, you can write me an email or DM via WhatsApp and, if necessary and whenever I am available, we can meet online during my free times. I’ll give my best to be available most of the times when needed for you. Unfortunately, this semester also we will not be able to meet face to face due to the pandemic.

**Course WhatsApp group in which the instructor and the TAs participate**:

[https://chat.whatsapp.com/DDD1GGf82V0H5y3aJ3IijS](https://chat.whatsapp.com/DDD1GGf82V0H5y3aJ3IijS%20)

**Zoom link for the lectures and instructor’s office hours:**

<https://sabanciuniv.zoom.us/j/3888722271?pwd=WW85ejluYVI3M3VaRjI4aG9hcURQdz09>

Meeting ID: 388 872 2271

Passcode: 1uMTxm

**TA, recitation and office hours’ info:**

**1. Mohsin Munawar, email:** mohsin@sabanciuniv.edu

 **Zoom link for Mohsin’s recitations and office hours:**

<https://sabanciuniv.zoom.us/j/4368316644?pwd=RXBlMitqMUFvMTJ3d0crWEdOVEtTdz09>

**2. Mutlu Soruklu, email:** mutlusoruklu@sabanciuniv.edu

 **Zoom link for Mutlu’s recitations and office hours:** <https://sabanciuniv.zoom.us/j/7510544831>

**3. Kenan Fayoumi, email:** kenanf@sabanciuniv.edu

 **Zoom link for Kenan’s office hours:** <https://sabanciuniv.zoom.us/j/2605484436>

**Recitation schedules and links:**

A1: given by Mohsin Munawari

 Thursday: 17.40-19.30

 Wednesday: 11.40-13.30

 Link: <https://sabanciuniv.zoom.us/j/4368316644?pwd=RXBlMitqMUFvMTJ3d0crWEdOVEtTdz09>

B1: given by Mutlu Soruklu

 Friday 15.40-17.30

 Wednesday 17.40-19.30

 Link: <https://sabanciuniv.zoom.us/j/7510544831>

Detailed OH schedule and the corresponding Zoom links for the OH and recitations will be shared to SUCourse+: All TAs’ recitations and office hours are being held online and by Zoom.

**Grading**

**1. One Midterm (30%):** There is going to be one Midterm Exam. Check down for more info.

**2. Final (35%)** – will be scheduled by student resources. Check down for more info.

**3. Homework assignments (25-30%)** – The homework assignments are not of equal weight and individual weights will be
 determined at the end of the semester. Homework grading will mostly be based on correctness of the execution; not
 based on how big is the mistake or how hard you work for it. Thus please test your code very carefully. No debugging will
 be done during grading. No code/file changes are allowed after the submission. If you submit wrong file, we cannot grade
 your work. If you have mistyped even a single character that causes a compilation error, we cannot do anything. Check
 down for more info

**4. Attendance&activites and/or quizzes (5-10%):** Check down for more info

**Regarding the exams (the midterm and the final) (30% midterm, 35% the final exam):**

1. Both of them will be online. Will announce them at least a week before they happen.Since they will be recorded under strict
 guides, it is up to you to make sure that you have a strong internet connection, a camera, a microphone and speakers (but
 not headsets). Most of the laptops have them all already integrated.

2. Before the exams you’ll get a detailed document guide on how the exams will be held and what are your responsibilities.

3. Every misbehavior (cheating, communicating with any other person except of CS 201 team representative, not adhering to
 the guides in the document that will be provided to you before the exam, etc.) during the recorded exam will be punished
 according to the regulations, so as to be to be fair to the honest students. **We have zero tolerance in such cases**. I take
 such misbehaving personal as well!

4. A random subset of students will be chosen for oral examinations (tur. sözlü sınav) after each exam. The topics of such
 exams will cover all the materials from lectures and recitations. Especially we plan to examine the students that acted
 suspiciously during the exam. In case that there is a huge difference between the results expressed during the online
 exam(s) and the oral examination, necessary actions will be taken according to the regulations, such as reporting the case
 to Dean’s office for further ınspection, reducing the exam’s grade, course failure in case of proven cheating, etc.

5. There is the possibility for make-up exam. Read below the policies and conditions for make-up exams

**Regarding the homework assignments (25-30%):**

1. We plan to assign 6 homework (HW). From them the one with the lowest grade will be automatically dropped.

 A personal advice: Wisely use this opportunity so as to skip a single homework when you will feel tired or when you will

 not have time. Usually this happens around the exam times. However, if you plan it accordingly and don’t leave your

 tasks for the last minute, you shouldn’t have problem doing all of the assignments.

 A friendlier advice: do all of the assignments. Check the *Attendance&activites and/or quizzes section* below. Besides, the

 assignments prepare you for the actual tasks you might face when working in a company, when doing research or, if

 anyone of you is going to continue his education, for your graduate life. Also, in my opinion, they are among the best

 methods to prepare for the exams.

2. You’ll have at least 7 days to do each of the assignment. An extra day with a penalty of 10% will be also offered.

3. No make-up policy for the assignments. That’s why you can skip at most one.

4. We will check each HW for plagiarism. We have a tool for that.

4. You must submit your own work! No group works! Collaboration will not be considered as an excuse for plagiarism!

 We have zero tolerance for homework trading or plagiarism. During our experience we have encountered: 1) students
 that shared his/hers homework with a friend just to show him/her their work. The friend uploaded similar solution and they

 both got penalized for it. 2) Students dealing with HW trading, either by asking other students to write the assignments for

 them or by asking companies to do that in exchange for money. The company/student that wrote the HW gave the same

 solution to two different students that didn’t know each other. They both got penalized according to the regulations.

 Check more for our plagiarism policies in this link: <http://people.sabanciuniv.edu/levi/cs204/policy_plagiarism.html> .

5. A random subset of around 20 students will be chosen for oral examinations for each assignment. In such cases we will

 prioritize the students on which we suspect of misbehaving (breaking one of the above rules).

6. Formal development environment of CS 201 is MS Visual Studio 2012 (running on a Windows computer) and the
 homework assignments will be graded using it. Use any other development options at your own risk (gcc, Xcode, VS over

 Mac, anything over Mac, etc.). In the past, different behaviors have been experienced in different development
 environments. That is why, I have to standardize it.

**Homework Submission and Grading Policy of CS 201**

1. Homework submission must be done only to SUCourse+. Email or other type of submissions are not allowed.

2. You will be able to resubmit your homework until the deadline.

3. If you resubmit your homework after the deadline, but during the late submission period, your homework will be treated
 as late (thus a penalty of 10% will be applied to it).

4. **No modification is allowed after SUCourse+ closes.** Thus, please make sure that you've submitted the correct
 homework. If you submit wrong file or if a crucial file is missing, we cannot grade your homework and you get zero (0). We
 do not allow code changes after SUCourse+ closes either. We grade whatever you submit to SUCourse+. Sometimes, the
 students argue the local computer's system time as a proof of timely completion of a wrongly submitted homework; we
 cannot accept such local proofs and we cannot accept any file other the ones submitted to SUCourse+. No exceptions to
 this rule.

5. Homework grading may be done via a demo and you may be questioned about your homework during the demo.

6. **Homework grading is mostly based on correct execution.** We generate some test data for grading and this test data
 is never given out before the deadline. Moreover, the test data will always be different than the sample runs given in the
 homework document. If your homework executes wrongfully against this test data, your grade will be lowered accordingly
 no matter how big is your programming bug and no matter how hard you work for it. Sometimes the bug is too simple, but
 it may cause your program to work totally wrong and you may get very low grades. Sometimes, you mistype a character
 that causes some compilation errors. This are too unfortunate but we have nothing to do. In order to avoid such cases,
 please test your program thoroughly before the submission and make sure that the submitted version is the most up to
 date one. And please do not write us to complain about this policy and its outcomes within the semester; you know it at the
 beginning of the semester and you take this course by knowing this policy.

7. **We do not debug your code during grading to understand where the problem is.** As mentioned in the previous bullet,
 we just test your code and grading is not based on how big your bug is.

8. **Testing is your responsibility.** We do not use grade checker or any other online tool in order to give you a feedback
 about the correctness of your program before the deadline. However, depending on the suitability of homework, we will
 provide some sample runs together with the project specification. However, we do not guarantee that sample runs cover
 all of the edge cases. Nevertheless, it is your responsibility to test your program against all possibilities in order not to lose
 points due to some bugs.

**Regarding the attendance&activities and/or quizzes (5-10%)**

1. Each week we will take attendance on a random lecture(s). Only the ones that at the moment of taking the attendance are
 present at the online lecture and proof it by typing their names in the chat on the zoom platform within 45 seconds after
 they are asked to do so will be counted as having attended that particular lecture.

2. During the lectures we may have short un-announced online quizzes.

3. The students that will submit all of the 6 HW assignments and at each of them receive at least 65% of the maximum grade,
 will take full credits (maximum points) form the attendace&activities part of the overall grade. Moreover, the HW with the
 lowest score will still be dropped. So, do all of your assignments! :D

**Rules and regulation regarding the instructor’s and TAs’ office hours**

1. Office hours will be done by Zoom. The zoom links are the same as the lectures and recitation links.

2. In case of multiple students showing up for the same OH, as soon as they join the meeting they should write their names
 in the chat section of the Zoom. The students will be served in first-come first-served order according to their names written
 in the chat section of Zoom. When the turn of a particular student comes, the instructor/TA shares a private/separate
 meeting with that student either by using a breakout zoom section or by sharing a google meet link with him. We do so
 since during the OH students might need to share their screen and ask question related to their HW codes and the other
 students are not supposed to see them

3. In case of multiple students showing during the same OH, besides first-come first served, they will be served in round-robin
 fashion so that no more than 6-7 minutes (on average it is one question) is spend on a single student. We do this for
 fairness reasons so that all of the students can get a relatively equal time to get their questions answers. After using his/hers
 time quota of 6-7 minutes, if the student has more questions, he/she can write his/her name again in the chat section of
 Zoom and wait for his/her turn again.

**Rules to submit a medical report to take a make-up exam in CS 201**

1. All medical reports must be submitted BEFORE the exam. If this is not possible due to last minute problems or you cannot
 go to a medical institution due to COVID-19, the instructor must be called before the exam. Any excuses that will be taken
 into instructor's account after the exam will not be considered.

2. Please keep in mind that it is totally up to the instructor to accept a medical report/excuse according to the by-laws. That
 means, a medical report does not guarantee taking a make-up exam. The instructor must make sure about the necessity
 of taking the make-up exam depending on your illness.

3. Moreover, please keep in mind that for fairness reasons towards other students, the advantage of having a late exam will
 be compensated by having more difficult questions in the makeup exam. Make-up exams can be totally or partially verbal
 (sözlü in Turkish).

**Other Rules and Remarks**

1. Weighted average is not the only criterion in letter grading; exam average may also be taken into consideration.
 Discrepancies between homework and exam averages will also be considered in letter grading and unexplainable
 discrepencies may reduce the homework contribution to overall grade.

2. Students are expected to attend all classes, recitations and labs. In CS201 you will learn a programming language (C++ in
 our case) and it is much easier to learn a programming language when a person explains it. You have to spend more time
 to compensate a missed class. So absenteeism does not buy time.

3. Students are responsible for the material covered in class even if it is not part of the lecture notes published on the website
 (Sometimes we explain some stuff on the board). That is why attendance is important.

4. I will be sharing lecture videos in case you miss a point during lectures or if you miss a lecture due to reasonable excuses
 We might also share the recitation videos. If we decide to share them, each week only one of the sections will be shared.

5. Students are responsible to check their emails (Sabanci University accounts), SUCourse+ and course website daily for any
 announcements related to this course.

6. We have a strict make-up policy. If you plan to take a makeup exam, please first read the makeup policy at the website in
 order to understand the rules and to see whether you are eligible or not.

7. Honest and friendly advice: Do not leave materials to be accumulated, don’t delay your tasks (HW, studying for exams,
 etc.) for the last minute. Don’t think that the last office hours of the last day before the submission deadline will help you.
 Usually those office hours are overcrowded. **So do all of your tasks consistently (continuously) and in timely fashion**.

**A brief Summary on Policy on Plagiarism and Homework Trading**

A plagiarized homework may or may not be a verbatim copy of another homework. Verbatim copies are of course plagiarized ones. However, if a homework is derived from another one by partially changing some parts, this action is also plagiarism. Cooperation and working together is not an excuse. A common fallacy is that the graders cannot catch a program that is developed by partially changing another program. Believe it or not, such programs are caught very easily. There are software products available to catch such cases, and we use them. When a plagiarism case is detected, sanctions are applied to all parties regardless of the actual source of the homework. These sanctions are as follows.

1. All plagiarized homework owners receive –100 (minus hundred).

2. Second time, the student fails the course automatically.

**AGAIN! We have zero tolerance towards Plagiarism, HW Trading, Illegal Local and Remote Help and Cheating during the exams They will be penalized according to the corresponding regulations.**